

1 WHAT IS CLAIMED IS:

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3 1. A method for immunizing an animal against heterologous HIV-1 comprising  
4 administering to said animal an immunogen comprising at least one modified  
5 HIV-1 envelope protein or fragment thereof, or DNA or virus encoding said at  
6 least one modified HIV-1 envelope protein or fragment thereof, or a  
7 combination thereof, said modified envelope protein or fragment thereof  
8 having a V2 region deletion, wherein said animal exhibits immunity to at least  
9 one HIV-1 strain other than that of said immunogen.

10

11 2. The method of claim 1 wherein said immunity comprises a humoral response.

12

13 3. The method of claim 1 wherein said immunogen comprises a modified HIV-1  
14 envelope protein from a clade-B HIV-1 strain.

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16 4. The method of claim 3 wherein said HIV-strain is SF162.

17

18 5. The method of claim 4 wherein said modified HIV-1 envelope protein is SEQ  
19 ID No:2 or SEQ ID No:4.

20

21 6. The method of claim 4 wherein said DNA encoding said at least one modified  
22 HIV-1 envelope protein is SEQ ID No:1 or SEQ ID No:3.

23

24 7. The method of claim 2 wherein said humoral response comprises neutralizing  
25 antibodies.

26

Rule 1.26

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- 1 <sup>8.</sup>~~7.~~ The method of claim 2 wherein said humoral response comprises protective  
2 antibodies.  
3
- 4 <sup>9.</sup>~~8.~~ The method of claim 1 wherein said animal is a human.  
5
- 6 <sup>10.</sup>~~9.~~ A method for eliciting a heterologous immune response to HIV-1 in an animal  
7 comprising immunizing said animal with an immunogen comprising at least  
8 one modified HIV-1 envelope protein or fragment thereof, or DNA or virus  
9 encoding said at least one modified HIV-1 envelope protein or fragment  
10 thereof, or a combination thereof, said modified envelope protein or fragment  
11 thereof having a V2 region deletion, wherein said animal exhibits a an  
12 envelope-specific immune response to at least one HIV-1 strain other than that  
13 of said immunogen.  
14
- 15 <sup>11.</sup>~~10.~~ The method of claim 9 wherein said envelope-specific immune response  
16 comprises a humoral response.  
17
- 18 <sup>12.</sup>~~11.~~ The method of claim 9 wherein said immunogen comprises a modified HIV-1  
19 envelope protein from a clade-B HIV-1 strain.  
20
- 21 <sup>13.</sup>~~12.~~ The method of claim 11 wherein said HIV-strain is SF162.  
22
- 23 <sup>14.</sup>~~13.~~ The method of claim 12 wherein said modified HIV-1 envelope protein is SEQ  
24 ID No:2 or SEQ ID No:4.  
25

Rule 1.26  
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- 1 <sup>15</sup>  
~~14.~~ The method of claim 12 wherein said DNA encoding said at least one modified  
2 HIV-1 envelope protein is SEQ ID No:1 or SEQ ID No:3.  
3
- 4 <sup>16</sup>  
~~15.~~ The method of claim 10 wherein said humoral response comprises neutralizing  
5 antibodies.  
6
- 7 <sup>17</sup>  
~~16.~~ The method of claim 10 wherein said humoral response comprises protective  
8 antibodies.  
9
- 10 <sup>18</sup>  
~~17.~~ The method of claim 9 wherein said animal is a human.  
11
- 12 <sup>19</sup>  
~~18.~~ A pharmaceutical composition for immunizing an animal against HIV-1 virus  
13 comprising an effective heterologous envelope-specific immune response-  
14 eliciting amount of at least one modified HIV-1 envelope protein or fragment  
15 thereof, or DNA or virus encoding said at least one modified HIV-1 envelope  
16 protein or fragment thereof, or a combination thereof, said modified envelope  
17 protein or fragment thereof having a V2 region deletion; and a  
18 pharmaceutically-acceptable carrier or excipient.  
19
- 20 <sup>20</sup>  
~~19.~~ The pharmaceutical composition of claim 18 wherein said modified HIV-1  
21 envelope protein is from a clade-B HIV-1 strain.  
22
- 23 <sup>21</sup>  
~~20.~~ The pharmaceutical composition of claim 19 wherein said HIV-1 strain is  
24 SF162.  
25

- 1 <sup>22</sup>  
21. The pharmaceutical composition of claim 20 wherein said modified HIV-1  
2 envelope protein is SEQ ID No:2 or SEQ ID No:4.  
3
- 4 <sup>23</sup>  
22. The pharmaceutical composition of claim 20 wherein said DNA encoding said  
5 at least one modified HIV-1 envelope protein is SEQ ID No:1 or SEQ ID No:3.  
6
- 7 <sup>24</sup>  
23. A method for assessing whether a compound is capable of generating  
8 protective antibodies in an animal against at least one heterologous strain of  
9 HIV-1, said animal capable of developing protective antibodies against wild-  
10 type HIV-1, said method comprising the steps of immunizing said animal with  
11 said compound, depleting said animal of its CD8+ T-lymphocytes, and  
12 assessing the presence of protective antibodies in the said animal to at least one  
13 heterologous strain of HIV-1.  
14
- 15 <sup>25</sup>  
24. The method of claim 23 wherein said depleting is carried out by administering  
16 to said animal anti-CD8 monoclonal antibodies.  
17
- 18 <sup>26</sup>  
25. The method of claim 23 wherein said compound is an HIV-derived polypeptide  
19 or fragment thereof or a DNA or virus encoding said peptide or fragment  
20 thereof.  
21
- 22 <sup>27</sup>  
26. The method of claim 23 wherein said immunizing is carried out with a DNA  
23 vaccine, a protein, or a combination thereof.  
24
- 25 <sup>28</sup>  
27. The method of claim 23 wherein said neutralizing antibodies are protective  
26 antibodies.